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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/745,114

12/20/2000

Sam Yang

303.714US1

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21186

7590

10/12/2006

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.

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EXAMINER

WILSON, SCOTT R

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/745,114	Applicant(s) YANG, SAM	
	Examiner Scott R. Wilson	Art Unit 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) See Continuation Sheet is/are allowed.
- 6) ☒ Claim(s) 4, 9-11, 79, 85, 92, 97, 103, 112, 116, 117, 120, 124, 125, 140, 142 and 144-146 is/are rejected.
- 7) ☒ Claim(s) 139, 141 and 143 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/5/06</u> | 6) <input type="checkbox"/> Other: _____  |

Continuation of Disposition of Claims: Claims pending in the application are 2-11,13-26,29,30,32,74-80,83-86,90-92,96-98,102-104,106,111-117,119-125,127-138 and 140-153.

Continuation of Disposition of Claims: Claims allowed are 2,3,5-8,13-26,29,30,32,74-78,80,83,84,86,90,91,96,98,102,104,106,111,113-115,119,121-123,127-138 and 147-153.

**DETAILED ACTION*****Claim Objections***

New claim 139 is objected to because of the following informalities: Claim 139 was skipped over in the new claims added in the amendment filed 5 July 2006. In order to avoid confusion, claim 139 will be treated as a cancelled claim. No correction is required.

***Response to Arguments***

Applicant's arguments filed 5 July 2006 have been fully considered but they are not persuasive.

As to claims 4, 79, 85, 92, 97, 103, 112, 120, applicant argues that Shinriki et al. (US 4,937,650) does not teach that the metal component of the first or second electrode may be the same as the metal component of the buffer layer. Shinriki, Figure 10, discloses (col. 7, lines 44-54) a capacitor comprising a first electrode (15), a second electrode (4), a single compound, dielectric layer (16), and a metal oxide buffer layer (3), embodied as a TaO<sub>3</sub> film, which is known in the art to have an orthorhombic crystalline structure (see, for example, Doeff et al., col. 5, lines 18-30). Shinriki discloses that the lower electrode (col. 8, lines 24-26), or the upper electrode (col. 8, lines 34-37) may be formed of tantalum silicide. The lower electrode may also be formed from TaN (col. 8, line 15).

As to claims 9-11, 116, 117, 124 and 125, applicant argues that Shinriki does not teach that one of the first or second electrodes are formed from a metal nitride, or that the metal oxide buffer layer includes a refractory metal which is the same refractory metal in the first or second electrodes. Shinriki, Figure 10, discloses that the lower electrode may be formed from TaN (col. 8, line 15). Shinriki further discloses that the buffer layer (3) may be formed from TaO<sub>3</sub> (col. 7, lines 45-46), and tantalum is known to be classified as a refractory metal.

***Claim Rejections - 35 USC § 102***

Claims 140, 142, 144-146 is rejected under 35 U.S.C. 102(b) as being anticipated by Shinriki.

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As to new claim 140, Shinriki, Figure 10, discloses that the buffer layer (3) comprises a single layer.

As to new claim 142, Shinriki discloses that the lower electrode (15) may be formed from titanium nitride. The lower electrode may be labeled as the second electrode without changing the scope of the invention.

As to new claim 144, Shinriki discloses (col. 7, lines 44-54) that the buffer layer (3) includes tantalum.

As to new claim 145, Shinriki, claim 4, discloses that the dielectric layer may include zirconium or hafnium. The dielectric layer and buffer layers may have their labels interchanged without affecting the scope of the invention.

#### ***Allowable Subject Matter***

Claims 26, 30, 32, 80, 86, 98, 104, 128-138, 147-153 are allowed.

Claim 141 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. No prior art discloses the claimed invention where the metal oxide buffer layer includes tungsten.

Claim 143 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. No prior art discloses the claimed invention where the second electrode includes tungsten nitride.

#### ***Response to Amendment***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH

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shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott R. Wilson whose telephone number is 571-272-1925. The examiner can normally be reached on M-F 8:30 - 4:30 Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

srw